UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,480	02/27/2002	Kazuyuki Miya	L9289.02130	3434

24257 7590 03/31/2010

Dickinson Wright PLLC
James E. Ledbetter, Esq.
International Square
1875 Eye Street, NW., Suite 1200
WASHINGTON, DC 20006

EXAMINER	
ISMAIL, SHAWKI SAIF	
ART UNIT	**PAPER NUMBER**
2455	

MAIL DATE	DELIVERY MODE
03/31/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/069,480
Filing Date: February 27, 2002
Appellant(s): MIYA ET AL.

Panasonic Corp.
For Appellant

EXAMINER'S ANSWER

This is in response to the amended Appeal Brief filed January 4, 2010 appealing from the Office action mailed December 9, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

The examiner would also like to add that claims 48 and 49 teach essentially the same limitation as claims 40 and 41 and are therefore rejected under the same reasoning's as claims 40 and 41. Therefore, claims 40-41 and 48-49 stand correctly rejected, under 35 USC §103(a), as being unpatentable over Mohebbi U.S. Patent 6,889,046 in view of Nakajima et al., U.S. Patent No. 5,940,769. and further in view of Parkvall et al., U.S. Patent No. 6,542,736.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Soft hand-off in cellular mobile communications networks by Behzad Mohebbi U.S. Patent No. 6,889,046

Radio communication system having re-send control method by Nakajima et al U.S. Patent No. 5,940,769

Efficient radio link adaptation and base station sector selection in a radio communication system by et al U.S. Parkvall Patent No. 6,542,736

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 38-39, 42, 43-47, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mohebbi** (hereinafter referred to as Mohebbi) U.S. Patent **6,889,046** in view of **Nakajima et al.,** (hereinafter referred to as Nakajima) U.S. Patent No. **5,940,769.**

Mohebbi teaches a mobile station that is capable of receiving a downlink signal from each of a plurality of base stations and transmitting an uplink signal to the plurality of the base stations through a wireless channel. The mobile station produces a measure of signal quality of the downlink signals from the plurality of base stations to the mobile station and selects a base station from which the downlink signal shows a preferred signal quality. The mobile station transmits an uplink signal indicating the selected base station among the plurality of base stations for subsequent communications with the mobile station. Each base station processes the uplink signal to identify the selected base station from among the plurality of base stations (see abstract).

As to claim 38, Mohebbi teaches a fast packet transmission system comprising a communication terminal and a plurality of base stations, wherein: the communication terminal comprises:

a selector that selects a base station to communicate a packet in a next transmission unit according to channel states between the communication terminal and base stations (refer to col. 4, lines 34-52, the mobile station selects a base station according to channel states between the base station and the mobile station); and

each base station comprises:

a determiner that determines whether to communicate the packet in the next transmission unit based on the base station selection information (refer to col. 4, lines 34-52, a base station determines whether it is the selected base station);

a controller that determines a transmission target packet based on the acknowledgment or negative acknowledgment information and packet number

information when the base station communicates the packet in the next transmission unit (refer to col. 4, lines 34-52, the base station determines the next packet to transmit to the mobile station); and

a base station transmitter that communicates the transmission target packet determined in the controller to the communication terminal (refer to col. 4, lines 34-52, the base station transmits the packets).

Although the features of error detection and ACK and NAK of a received packet is implicitly taught in the system of Mohebbi, Mohebbi fails to explicitly teach an error detector that detects an error in a received packet; a determiner that determines a packet number of the received packet; and a terminal transmitter that communicates acknowledgment or negative acknowledgment information indicating whether an error is detected in the received packet, request packet number information indicating the packet number of a packet that is requested to be communicated in the next transmission unit .

Nakajima explicitly teaches the features of error detection and specifically re-send control. Nakajima teaches:

> A sequence number and redundancy bits for detecting error are added to a data packet. First, N-th data packet is transmitted from the base station 101 to the mobile station 102. In the mobile station 102, presence of error is checked by using the redundancy bits for detecting and correcting error. When no error is found, as shown in FIG. 2, **ACK (affirmative response)** showing that the N-th data packet is received correctly is transmitted to the base station 101. The base station 101, when receiving ACK, transmits the *next (N+1)-th data packet to the mobile station 102.* In the second base station 102, checking error similarly, and if error is found, as shown in FIG. 2, **NAK (negative response)** showing that error is contained in the (N+1)-th data packet is transmitted to the first base station 101. The base station 101, when receiving NAK, *re-sends the (N+1)-th data packet to the mobile station 102.* In the second

> base station 102, checking error similarly, and when no error is found, as shown in FIG. 2, ACK showing that the (N+1)-th data packet is received correctly is transmitted to the base
> station 101. After receiving ACK, the base station 101 transmits next data to the mobile station 102. (refer to col. 1, line 50 –col. 2, line 3, emphasis added)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the teaching of Nakajima's error detection into the invention of Mohebbi in order to detect error in a received packet and to enable a mobile station to detect the occurrence of an error in a received packet and to take corrective measures.

As to claim 39, Mohebbi teaches the fast packet transmission system according to claim 38, wherein the terminal transmitter communicates the packet number information to the base stations only when the base station that communicates the packet is switched (refer to col. 4, lines 34-52).

As to claim 42, Mohebbi teaches the fast packet transmission system according to claim 38, wherein the terminal transmitter communicates the request packet number information with transmit power higher than transmit power of other information (col. 7, lines 15-24.

Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mohebbi** (hereinafter referred to as Mohebbi) U.S. Patent **6,889,046** in view of **Nakajima et al.,** (hereinafter referred to as Nakajima) U.S. Patent No. **5,940,769.** and further in view of **Parkvall et al.,** (hereinafter referred to as Parkvall) U.S. Patent No. **6,542,736.**

As to claims 40-41, Mohebbi teach the system as described above. Mohebbi does not explicitly teach wherein the communication terminal identifies, in the communication

identifying the next packet to be communicated, the type of modulation the selected base station is to use in communicating the next packet.

Parkvall teaches data communications in a radio communications system, and more specifically, to adaptation of a radio link to a mobile terminal based on current radio communication conditions. Link adaptation may be accomplished by changing the transmit power of the base station, e.g., increasing the transmit power level for data transmitted to mobile terminals with a bad channel quality. Link adaptation may also be accomplished by changing the type of modulation and amount of channel coding applied to the data to be transmitted by the base station (see abstract, col. 2, lines 37-56).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the teaching of Parkvall into the invention of Mohebbi in order to be able attain better channel quality and to maximize the data transmission rate.

As to claim 43-50, they do not teach or define any new limitations above claims 38-42; therefore, they are rejected for similar reasons.

(10) Response to Argument

The examiner summarizes the various points raised by the appellant and addresses replies individually. As per appellants arguments filed on June 8, 2009, the appellant argues:

Argument (A) Nakajima fails to disclose an indication of a packet sequence number and the Advisory Action does not explain how such teaching would render the claimed subject matter obvious.

At the onset and after reviewing appellant's arguments, it becomes apparent to the examiner that the appellant is reading the claims too narrowly. The claims must be given the broadest reasonable interpretation and the examiner will refer to the claimed subject matter in response to appellant's arguments.

In response to applicant's arguments regarding the examiner's response not in the Advisory Action mailed out on March 11, 2009, the examiner respectfully disagrees. The claims merely recite:

> "a terminal transmitter that communicates acknowledgment or negative acknowledgment information indicating whether an error is detected in the received packet, request packet number information indicating the packet number of a packet that is requested to be communicated in the next transmission unit, and base station selection information indicating the selected base station, to the base stations"

It was the examiners intention in the Advisory Action to show to the appellant that the claimed "indicating the packet number of a packet that is requested to be communicated in the next transmission unit" is in fact taught by Nakajima through the ACK and NAK feature.

It is well known that ACK and NAK help identify errors in packets and are sent from the receiver to the sender to confirm proper reception of the data packet. A data packet is made of collection of data and a sequence number is used to distinguish between the different parts of the packet. Nakajima teaches:

A sequence number and redundancy bits for detecting error are added to a

> data packet. First, N-th data packet is transmitted from the base station 101 to the mobile station 102. In the mobile station 102, presence of error is checked by using the redundancy bits for detecting and correcting error. When no error is found, as shown in FIG. 2, **ACK (affirmative response)** showing that the N-th data packet is received correctly is transmitted to the base station 101. The base station 101, when receiving ACK, transmits the *next (N+1)-th data packet to the mobile station 102.* In the second base station 102, checking error similarly, and if error is found, as shown in FIG. 2, **NAK (negative response)** showing that error is contained in the (N+1)-th data packet is transmitted to the first base station 101. The base station 101, when receiving NAK, *re-sends the (N+1)-th data packet to the mobile station 102.* In the second base station 102, checking error similarly, and when no error is found, as shown in FIG. 2, ACK showing that the (N+1)-th data packet is received correctly is transmitted to the base
> station 101. After receiving ACK, the base station 101 transmits next data to the mobile station 102. (refer to col. 1, line 50 –col. 2, line 3, emphasis added)

ACKs and NAKs primary purpose is to alert or notify the source or sender of errors in a data packet and are used to request that the sender retransmit the erroneous packets. Sequence number help in identifying which data packet is received and which needs to be retransmitted. The receiver will transmit the NAK to notify the source that (packet number N) was not received properly. The NAK will inherently have the packet number of the erroneous packet in it. It is the only way for the sender to know which packets was not transmitted correctly and needs to be retransmitted. The same can be said about an ACK, the ACK provides a notification to the sender that packet number xx was received properly and to go ahead and send N+1 packet. Nakajima, through the use of ACKs and NAKs teaches "indicating the packet number of a packet that is requested to be communicated in the next transmission unit" and as such meets the scope of the claimed limitations and render the claims obvious.

Argument (B) Appellant argues that Nakajima's disclosure of communicating a packet sequence number occurs in a reverse direction to that of the claimed communication.

In response to the appellant arguments that the claimed communication and in essence the communication of the packet number occurring in a reverse direction, that is, from the Base Station to the Mobile Terminal, the examiner respectfully disagrees. The appellant has misconstrued the examiners position and the Nakajima reference. Nakajima teaches wherein a sequence number and redundancy bits for detecting errors are added to a data packet and is transmitted from the Bases Station to the Mobile Terminal. However, the sequence number that is added to a data packet and argued by appellant to be occurring in reverse direction is not what the examiner is equating to the claimed packet number. Nakajima further teaches wherein ACK and NAK are used by the recipient (Mobile Terminal) to notify the sender (Base Station) of errors in a received packet refer to (col. 1, line 50 –col. 2, line 3). Each ACK and NAK transmitted from the Mobile Terminal and destined for the Base Station will inherently have the packet number of the erroneous packet in it. It is the only way for the Base Station to know which packets was transmitted error free or with errors and needs to be retransmitted. Therefore the ACK and NAK are transmitted in the same manner as claimed by the appellants and as such meets the scope of the claimed limitation.

Argument (C) Appellant argues that the Advisory Action failed to rebut Appellants arguments made in response to the Final Rejection mailed on December 9, 2008.

Specifically appellant argues that the applied references fail to teach (1) a communication terminal that communicates packet number information indicating the packet number of a packet that is requested to be transmitted in a next transmission unit and (2) that one of a plurality of base stations determine a packet to transmit in a next transmission unit based on the packet number information.

The examiner respectfully disagrees. The examiner did in fact respond to Argument (1) in the Advisory action mailed out on March 11, 2009. The response, was an explanation of how Nakajima taught the claimed packet number (refer to the response to Argument (A) above for teaching the claimed subject matter). With regards to Argument (2), the examiner had previously addressed this argument in the "Response to Arguments' section of the Final Rejection. mailed out on December 9, 2008. The appellant had previously raised a similar argument in the response to non-final rejection. As the examiner had previously explained if an ACK is transmitted then the ACK will inherently point or direct the base station to transmit the next packet (equated to the claimed request packet) to the mobile station. On the other hand if a NAK is transmitted the NAK will inherently point to or direct the base station to retransmit the same packet (equated to the claimed request packet) to the mobile station. The Advisory Action only addressed the new arguments that the appellant made as such all the appellant's arguments were in fact rebutted and the applied references meet the scope of the claimed limitation.

Argument (D) Appellant continues to argue that the applied references do not teach a communicating packet number indicating information from a communication terminal to a bases station and further argue that Nakajima only teaches ACK/NAK and does not teach the claimed ACK/NAK and packet number (argument 2a, pages 11-14 of the Appeal Brief).

The examiner respectfully disagrees. The examiner believes that these arguments are similar to the arguments raised in Argument (A) and (B) and directs your attention to the responses above for a complete response to theses arguments. The examiner would also like to reiterate that ACK/NAK inherently contain sequence number (equated to the claimed packet number) which is transmitted from the mobile terminal to the base station in order to notify the bases station of either error-free delivery of a packet or errors in a packet and to direct the bases station to transmit the subsequent packet or to retransmit the same packet again. The claims are broad enough to be read on ACK/NAK and the inherent sequence number that is transmitted from the Mobile Terminal to the Bases Station.

Argument (E) Appellant argues that the Nakajima reference refers to one-to-one communication whereas the appellants claimed invention is one-to-many. Specifically that Nakajima is directed toward a communication between a Mobile Terminal and a Bases Station while appellants claimed invention is directed towards a Mobile Terminal and a plurality of Base Stations.

The Nakajima reference was introduced to supplement the Mohebbi reference. Mohebbi teaches wherein a mobile terminal selects a base station from a plurality of base station based on signal strength between the mobile terminal and each of the bases station. Mohebbi was silent as to how data communication occurred between the mobile terminal and the base station. More specifically, Mohebbi did not disclose wherein the mobile terminal transmits ACK and NAK and packet number information to one of the selected bases station so that the base station uses such information in transmitting the next packet. However, Nakajima teaches ACK/NAK and the transmission of sequence number (equated to the claimed packet number) to a bases station in order for the base station to use such information in the determining the next packet to transmit. The incorporation of the error control features from the Nakajima system into the system of Mohebbi would yield a one-to-many communication system and similar to appellants claimed invention. Therefore, Mohebbi in view of Nakajima meet the scope of the claimed invention and render the claims obvious.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Shawki S Ismail/
Primary Examiner
Art Unit 2455

Conferees:

/saleh najjar/

Supervisory Patent Examiner, Art Unit 2455

/DAVID Y. ENG/

Primary Examiner, Art Unit 2455